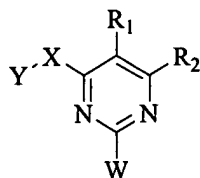


## AMENDMENTS TO THE CLAIMS

1. (Currently amended) A compound having the formula I:



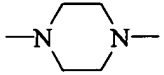
(I)

or a stereoisomer, tautomer, pharmaceutically acceptable salt, ester, or prodrug thereof, wherein

Y is selected from the group consisting of

- ~~(1) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~
- ~~(2) substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkenyl,~~
- ~~(3) substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkynyl,~~
- [(4)] (1) substituted or unsubstituted aryl,
- [(5)] (2) substituted or unsubstituted heterocyclyl, and
- [(6)] (3) substituted or unsubstituted heteroaryl;

X is selected from the group consisting of

- (1) a direct link,
- (2) -N(R<sup>1x</sup>)-,
- (3) -(CH<sub>2</sub>)<sub>m</sub>-C(R<sup>2x</sup>, R<sup>3x</sup>)-N(R<sup>1x</sup>)-,
- (4) -O-,
- (5) -S-,
- (6) -SO-,
- (7) -SO<sub>2</sub>-,
- (8) -C(R<sup>2x</sup>, R<sup>3x</sup>)-, and
- (9) ,

wherein R<sup>1x</sup>, R<sup>2x</sup>, and R<sup>3x</sup> are selected from the group consisting of

- (a) H,
- (b) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,
- (c) substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkenyl,
- (d) substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkynyl,
- (e) substituted or unsubstituted aryl,
- (f) substituted or unsubstituted heterocyclyl,
- (g) substituted or unsubstituted heteroaryl; and

m is 0, 1, 2, 3, or 4;

R<sub>1</sub> is selected from the group consisting of

- (1) H,
- (2) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,
- (3) -COOH,
- (4) halo,
- (5) -OR<sup>1t</sup>, and
- (6) -NHR<sup>1t</sup>,

wherein R<sup>1t</sup> is H or C<sub>1</sub>-C<sub>6</sub>-alkyl;

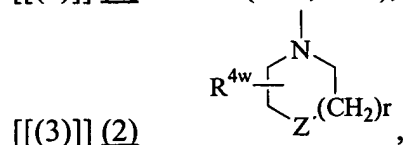
R<sub>2</sub> is selected from the group consisting of

- (1) substituted or unsubstituted aryl,
- (2) substituted or unsubstituted heteroaryl, and
- ~~(3) substituted or unsubstituted heterocyclyl; and~~

W is selected from the group consisting of

- ~~(1) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~

[[~~(2)~~]] (1) -N(R<sup>1w</sup>, R<sup>2w</sup>), and



wherein R<sup>1w</sup> and R<sup>2w</sup> are selected from the group consisting of

- ~~(a) H,~~
- ~~(b) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~

- [[ (c) ] (a) substituted or unsubstituted aryl,  
 [[ (d) ] (b) substituted or unsubstituted heterocyclyl, and  
 [[ (e) ] (c) substituted or unsubstituted heteroaryl,

~~wherein R<sup>1w</sup> and R<sup>2w</sup> are not both H;~~

Z is selected from the group consisting of

- (a) -O-,  
 (b) -NR<sup>z</sup>-,  
 (c) -S-,  
 (d) -SO-,  
 (e) -SO<sub>2</sub>-, and  
 (f) -CH<sub>2</sub>-,

wherein R<sup>z</sup> is H or substituted or unsubstituted alkyl group; and

R<sup>4w</sup> is selected from the group consisting of

- (a) H,  
 (b) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,  
 (c) -COOR<sup>5w</sup>,  
 (d) -CONH<sub>2</sub>,  
 (e) -OR<sup>5w</sup>, and  
 (f) -NHR<sup>5w</sup>,

wherein R<sup>5w</sup> is H or C<sub>1</sub>-C<sub>6</sub>-alkyl; and r is 0, 1, or 2;

~~with the proviso that when X is O, then Y is substituted or unsubstituted aryl, substituted or unsubstituted heterocyclyl, or substituted or unsubstituted heteroaryl;~~

~~with the proviso that when W is morpholino, thiomorpholino, 1-oxide thiomorpholino, 1,1-dioxido-morpholino, piperazino, or N-substituted piperazino, R<sub>2</sub> is morpholino, thiomorpholino, 1-oxide thiomorpholino, 1,1-dioxido thiomorpholino, piperazino, or N-[acetyl(alkanoyl of 1 to 3 carbon atoms)]piperazino, and X is NH, then Y is not hydrogen, alkyl of 1 to 3 carbon atoms, cyclohexyl, phenyl, chloro phenyl, carboxy phenyl, carbomethoxy phenyl, or pyridyl;~~

~~with the proviso that when W is morpholino, thiomorpholino, 1-oxide-thiomorpholino, 1,1-dioxido-morpholino, piperazino, or N-substituted piperazino, R<sub>2</sub> is morpholino, thiomorpholino, 1-oxide-thiomorpholino, 1,1-dioxido-thiomorpholino, piperazino, or N'-[acetyl(alkanoyl of 1 to 3 carbon atoms)]piperazino, and X is a direct link, then Y is not phenyl, substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl, or 1-oxidethiomorpholino; and~~

with the proviso that when R<sub>2</sub> is phenyl independently substituted with one to five substituents selected from hydrogen, cycloalkyl, heterocycloalkyl, halo, nitro, amino, sulphonamido, or alkylsulphonylamino, R<sub>1</sub> is hydrogen, haloalkyl, alkyl, or halo, and X is NR<sup>1x</sup>, then Y is substituted or unsubstituted heteroaryl or substituted or unsubstituted heterocyclyl.

2. (Currently amended) The compound of claim 1, wherein

Y is selected from the group consisting of

~~(1) —substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl;~~

[[~~(2)~~]] (1) substituted or unsubstituted aryl,

[[~~(3)~~]] (2) substituted or unsubstituted heterocyclyl, and

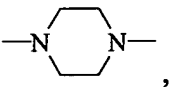
[[~~(4)~~]] (3) substituted or unsubstituted heteroaryl;

X is selected from the group consisting of

(1) a direct link,

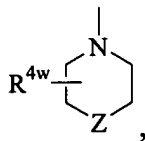
(2) -N(R<sup>1x</sup>)-,

(3) -(CH<sub>2</sub>)<sub>m</sub>-C(R<sup>2x</sup>, R<sup>3x</sup>)-N(R<sup>1x</sup>)-, and

(4) ,

wherein R<sup>1x</sup>, R<sup>2x</sup>, R<sup>3x</sup> are independently H or substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl; and

W is selected from the group consisting of



wherein Z is -O- or -NR<sup>z</sup>-, wherein R<sup>4w</sup> is H or substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl.

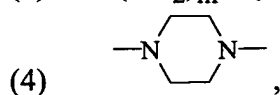
3. (Original) The compound of claim 1, wherein

Y is selected from the group consisting of

- (1) substituted or unsubstituted heterocyclyl,
- (2) substituted or unsubstituted heteroaryl;

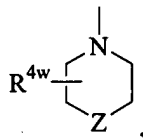
X is selected from the group consisting of

- (1) a direct link,
- (2)  $-N(R^{1x})-$ ,
- (3)  $-(CH_2)_m-C(R^{2x}, R^{3x})-N(R^{1x})-$ , and



wherein  $R^{1x}$ ,  $R^{2x}$ ,  $R^{3x}$  are independently H or substituted or unsubstituted  $C_1$ - $C_6$ -alkyl; and

W is selected from the group consisting of



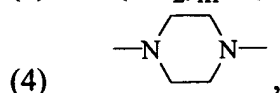
wherein Z is  $-O-$  or  $-NR^Z-$ , wherein  $R^{4w}$  is H or substituted or unsubstituted  $C_1$ - $C_6$ -alkyl.

4. (Original) The compound of claim 1, wherein

Y is substituted or unsubstituted aryl;

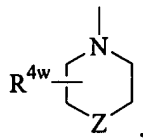
X is selected from the group consisting of

- (1) a direct link,
- (2)  $-N(R^{1x})-$ ,
- (3)  $-(CH_2)_m-C(R^{2x}, R^{3x})-N(R^{1x})-$ , and



wherein  $R^{1x}$ ,  $R^{2x}$ ,  $R^{3x}$  are independently H or substituted or unsubstituted  $C_1$ - $C_6$ -alkyl; and

W is selected from the group consisting of

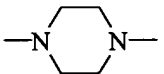


wherein Z is -O- or -NR<sup>z</sup>-, wherein R<sup>4w</sup> is H or substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl.

5. (Currently amended) The compound of claim 1, wherein

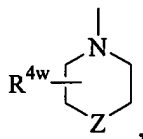
~~Y is substituted or unsubstituted alkyl;~~

X is selected from the group consisting of

- (1) a direct link,
- (2) -N(R<sup>1x</sup>)-,
- (3) -(CH<sub>2</sub>)<sub>m</sub>-C(R<sup>2x</sup>, R<sup>3x</sup>)-N(R<sup>1x</sup>)-, and
- (4) ,

wherein R<sup>1x</sup>, R<sup>2x</sup>, R<sup>3x</sup> are independently H or substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl; and

W is selected from the group consisting of



wherein Z is -O- or -NR<sup>z</sup>-, wherein R<sup>4w</sup> is H or substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl.

6. (Original) The compound of claim 1, wherein

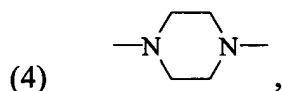
Y is selected from the group consisting of

- (1) substituted or unsubstituted heterocyclyl,
- (2) substituted or unsubstituted heteroaryl;

X is selected from the group consisting of

- (1) a direct link,
- (2) -N(R<sup>1x</sup>)-,

(3)  $-(\text{CH}_2)_m-\text{C}(\text{R}^{2x}, \text{R}^{3x})-\text{N}(\text{R}^{1x})-$ , and

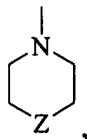


wherein  $\text{R}^{1x}$ ,  $\text{R}^{2x}$ ,  $\text{R}^{3x}$  are independently H or substituted or unsubstituted

$\text{C}_1\text{-C}_6$ -alkyl;

$\text{R}_2$  is substituted or unsubstituted aryl; and

W is



wherein Z is -O- or -NH-.

7. (Original) The compound of claim 1, wherein

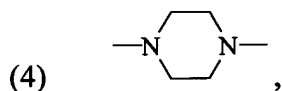
Y is substituted or unsubstituted aryl;

X is selected from the group consisting of

(1) a direct link,

(2)  $-\text{N}(\text{R}^{1x})-$ ,

(3)  $-(\text{CH}_2)_m-\text{C}(\text{R}^{2x}, \text{R}^{3x})-\text{N}(\text{R}^{1x})-$ , and

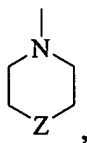


wherein  $\text{R}^{1x}$ ,  $\text{R}^{2x}$ ,  $\text{R}^{3x}$  are independently H or substituted or unsubstituted

$\text{C}_1\text{-C}_6$ -alkyl;

$\text{R}_2$  is substituted or unsubstituted aryl; and

W is



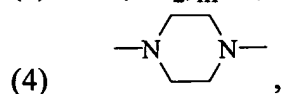
wherein Z is -O- or -NH-.

8. (Currently amended) The compound of claim 1, wherein

~~Y is substituted or unsubstituted alkyl;~~

X is selected from the group consisting of

- (1) a direct link,
- (2)  $-N(R^{1x})-$ ,
- (3)  $-(CH_2)_m-C(R^{2x}, R^{3x})-N(R^{1x})-$ , and

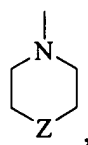


wherein  $R^{1x}$ ,  $R^{2x}$ ,  $R^{3x}$  are independently H or substituted or unsubstituted

$C_1$ - $C_6$ -alkyl;

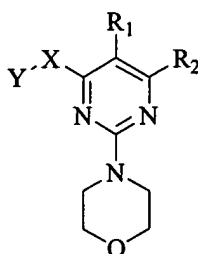
$R_2$  is substituted or unsubstituted aryl; and

W is



wherein Z is -O- or -NH-.

9. (Currently amended) The compound of claim 1, having the formula II:



(II)

wherein Y is selected from the group consisting of

~~(1) substituted or unsubstituted  $C_1$ - $C_6$ -alkyl,~~

[[ (2) ]] (1) substituted or unsubstituted aryl,

[[ (3) ]] (2) substituted or unsubstituted heterocyclyl, and

[[ (4) ]] (3) substituted or unsubstituted heteroaryl; and

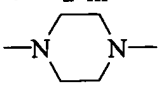
X is selected from the group consisting of

(1) a direct link,

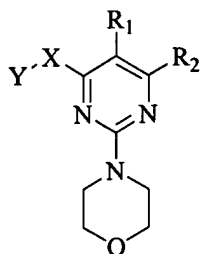
(2)  $-N(R^{1x})-$ ,



(3)  $-(\text{CH}_2)_m-\text{C}(\text{R}^{2x}, \text{R}^{3x})-\text{N}(\text{R}^{1x})-$ , and

(4) 

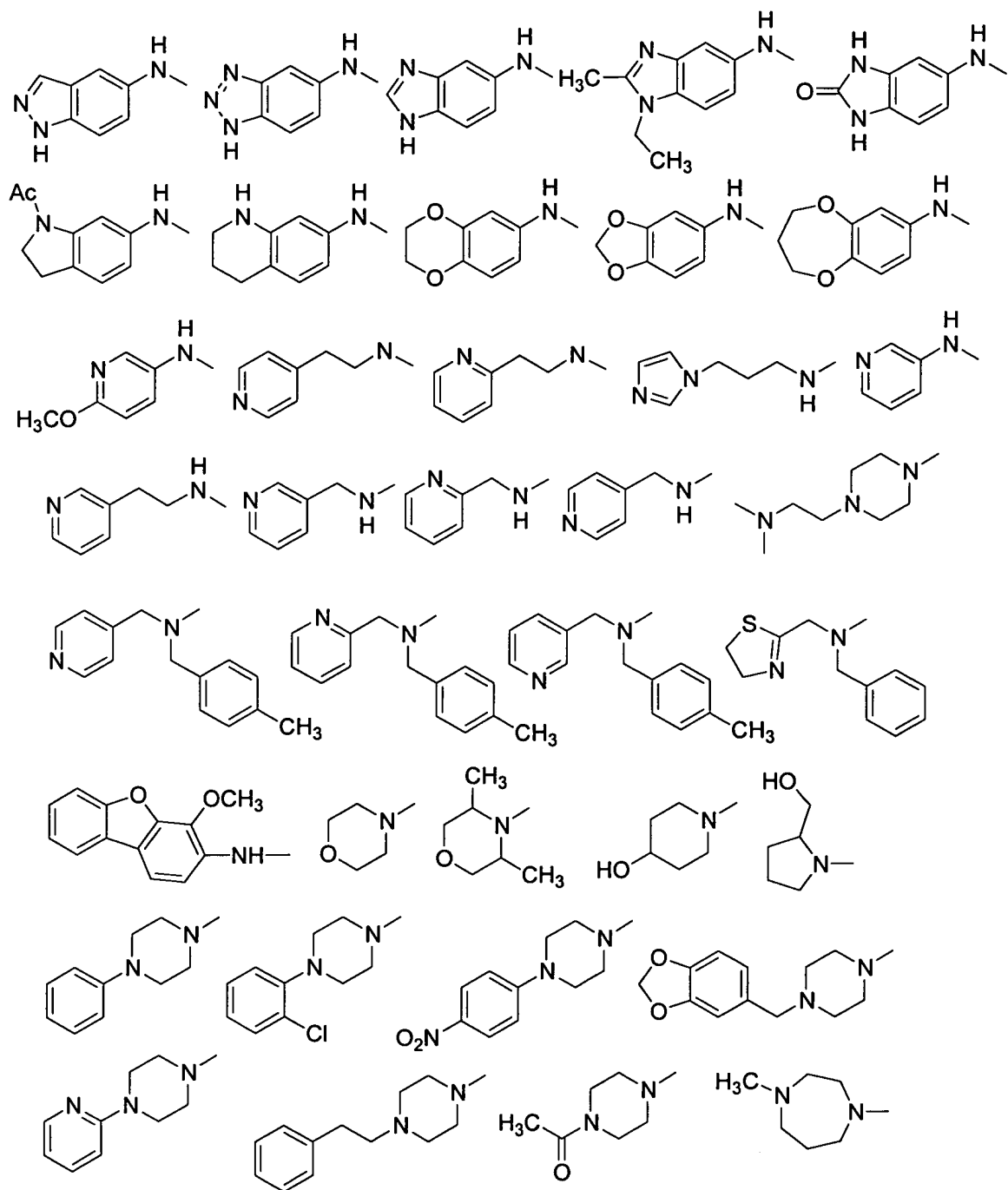
10. (Original) The compound of claim 1, having the formula II:



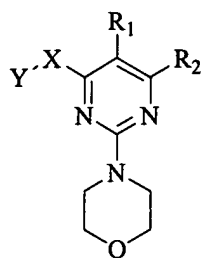
(II)

wherein Y and X, taken together, are selected from the group consisting of

LAW OFFICES OF  
CHRISTENSEN O'CONNOR JOHNSON KINDNESS<sup>TM</sup>  
1420 Fifth Avenue  
Suite 2800  
Seattle, Washington 98101  
206.682.8100

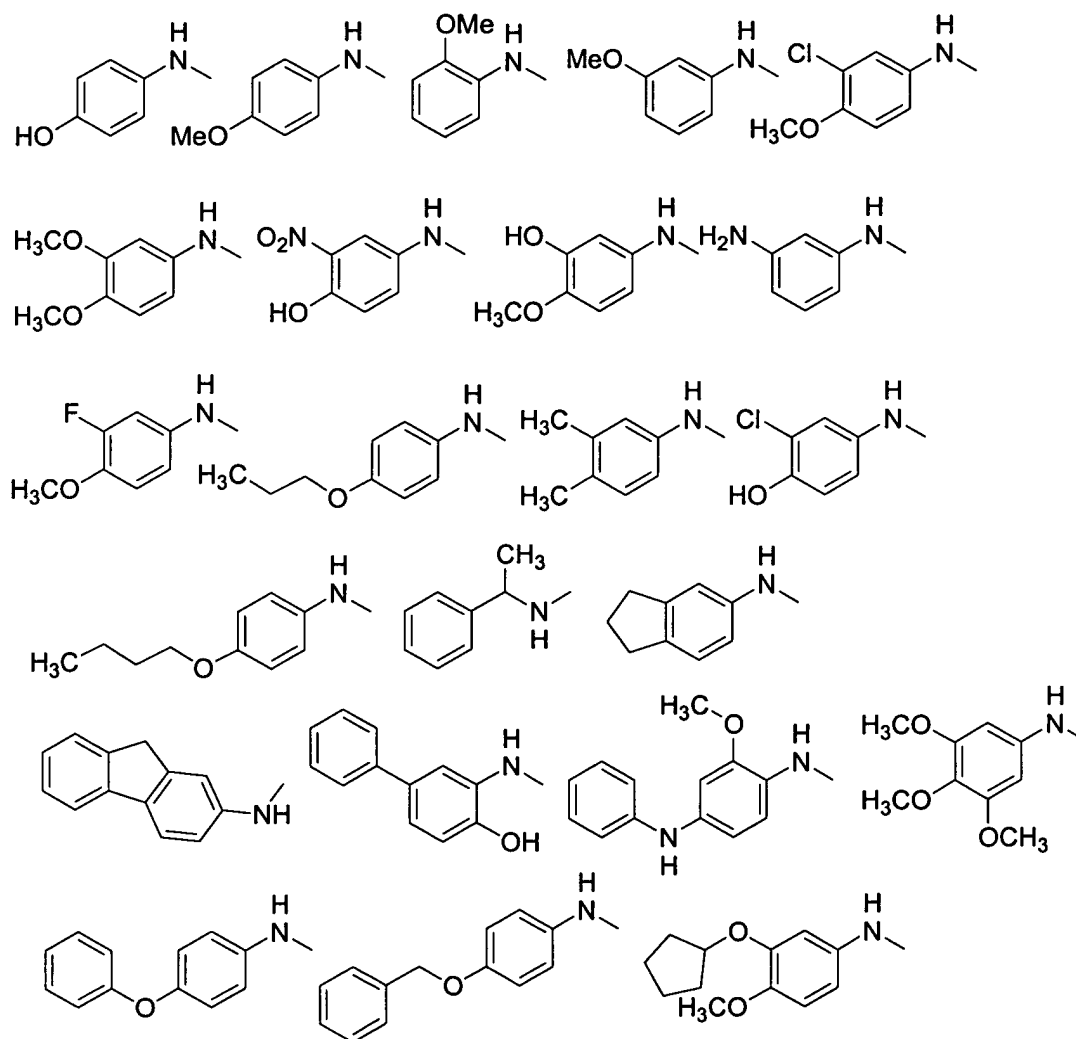


11. (Original) The compound of claim 1, having the formula II:

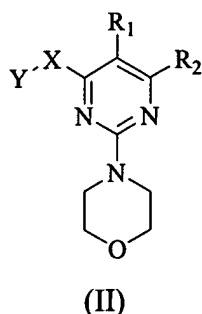


(II)

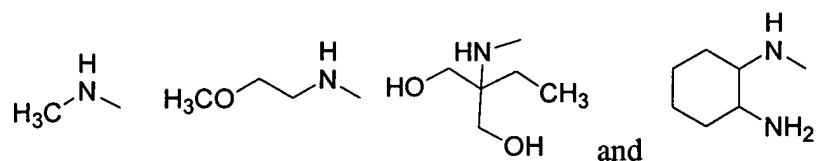
wherein Y and X, taken together, are selected from the group consisting of



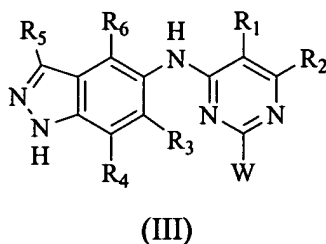
12. (Original) The compound of claim 1, having the formula II:



wherein, Y and X, taken together, are selected from the group consisting of



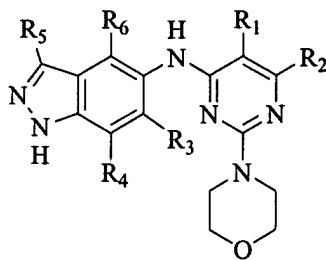
13. (Currently amended) The compound of claim 1, having the formula III:



wherein R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub> are selected from the group consisting of

- (1) H,
- (2) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,
- (3) -COOR<sup>1t</sup>,
- (4) ~~COONH<sub>2</sub>~~ -CONH<sub>2</sub>,
- (5) -OR<sup>1t</sup>, and
- (6) -NHR<sup>1t</sup>.

14. (Currently amended) The compound of claim 1, having the formula IV:

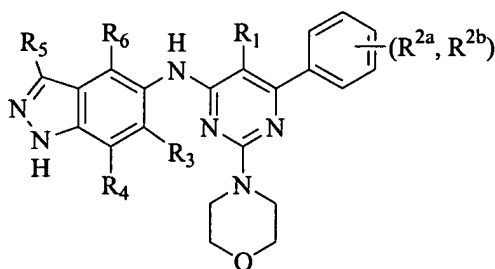


(IV)

wherein R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub> are selected from the group consisting of

- (1) H,
- (2) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,
- (3) -COOR<sup>1t</sup>,
- (4) ~~COONH<sub>2</sub>~~ CONH<sub>2</sub>
- (5) -OR<sup>1t</sup>, and
- (6) -NHR<sup>1t</sup>.

15. (Currently amended) The compound of claim 1, having the formula V:



(V)

wherein R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub> are selected from the group consisting of

- (1) H,
- (2) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,
- (3) -COOR<sup>1t</sup>,
- (4) ~~COONH<sub>2</sub>~~ CONH<sub>2</sub>
- (5) -OR<sup>1t</sup>, and

(6)  $\text{-NHR}^{1t}$ ; and

$\text{R}^{2a}$  and  $\text{R}^{2b}$  are selected from the group consisting of

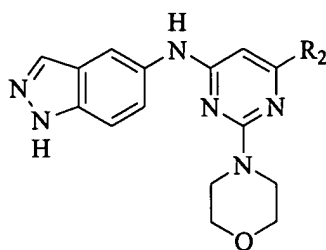
- (1) H,
- (2) substituted or unsubstituted alkyl,
- (3) halo,
- (4)  $\text{-(CH}_2)_q\text{-N(R}^{2c}, \text{R}^{2d})$ ,
- (5)  $\text{-(CH}_2)_q\text{-N(R}^{2c}, \text{R}^{2d})\text{COR}^{2e}$ ,
- (6)  $\text{-(CH}_2)_q\text{-OR}^{2e}$ ,
- (7)  $\text{-(CH}_2)_q\text{-OCOR}^{2e}$ ,
- (8)  $\text{-(CH}_2)_q\text{-OCOOR}^{2e}$ ,
- (9)  $\text{-(CH}_2)_q\text{-COOR}^{2e}$ ,
- (10)  $\text{-(CH}_2)_q\text{-CONR}^{2c}$ ,
- (11)  $\text{-CN}$ ,
- (12)  $\text{-NO}_2$ ,
- (13)  $\text{-SO}_2\text{NH}_2$ ,
- (14)  $\text{-NHSO}_2\text{CH}_3$ , and
- (15)  $\text{-SO}_2\text{R}^{2f}$ ,

wherein  $\text{R}^{2c}$ ,  $\text{R}^{2d}$ ,  $\text{R}^{2e}$ , and  $\text{R}^{2f}$  are selected from the group consisting of

- (a) H,
- (b) substituted or unsubstituted alkyl, and
- (c) substituted or unsubstituted phenyl; and

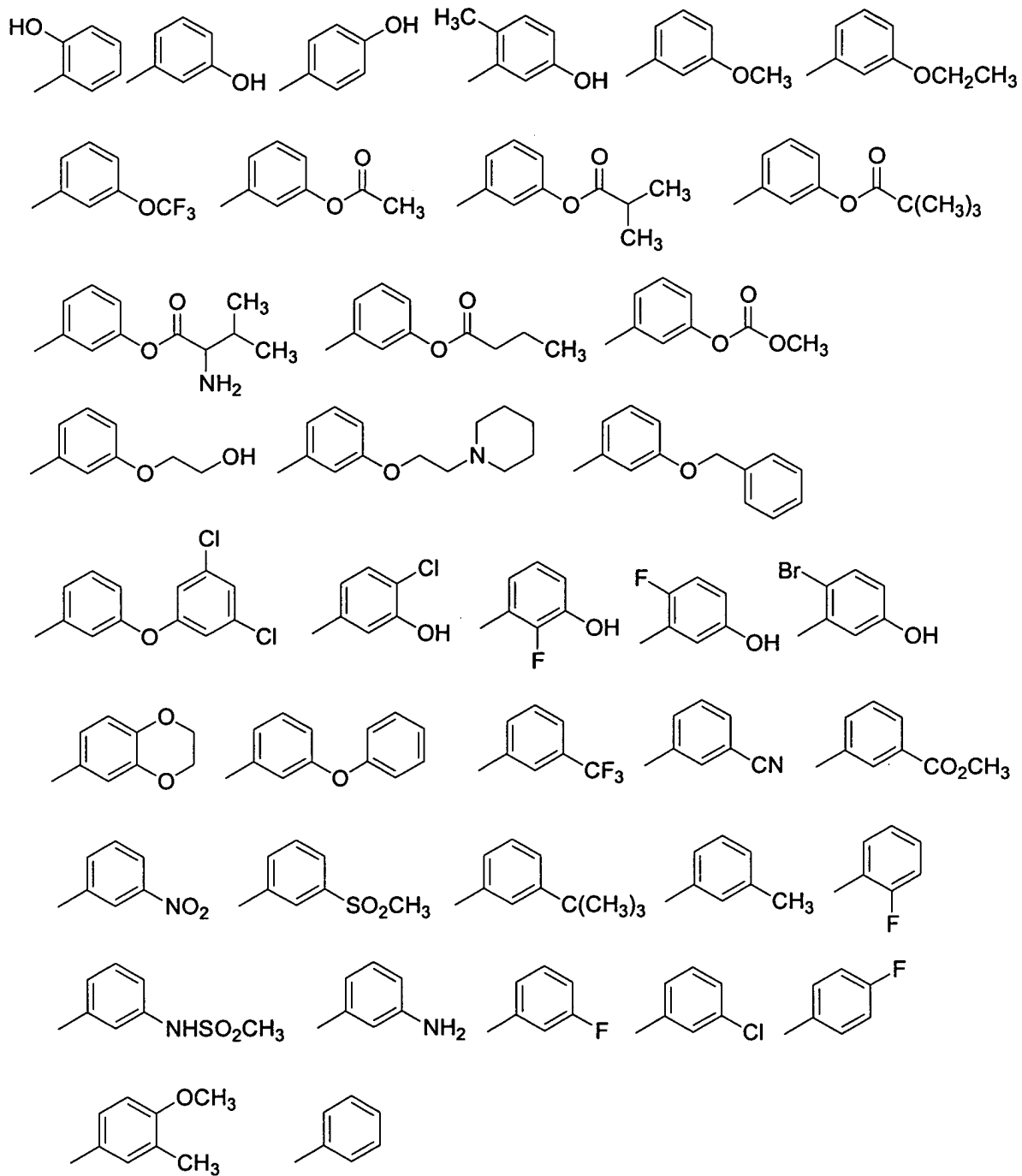
$q$  is 0, 1, 2, 3, or 4.

16. (Original) The compound of claim 1, having the formula VI:

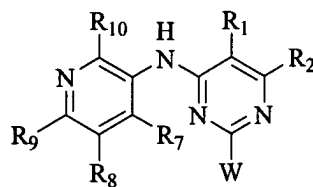


(VI)

wherein R<sub>2</sub> is selected from the group consisting of



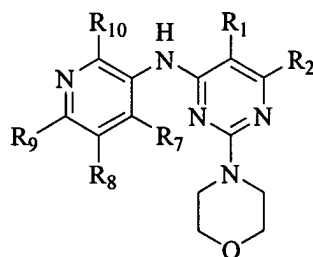
17. (Currently amended) The compound of claim 1, having the formula VII:



(VII)

wherein R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, and R<sub>10</sub> are selected from the group consisting of

- (1) H,
  - (2) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,
  - (3) -COOR<sup>1t</sup>,
  - (4) ~~COONH<sub>2</sub>~~ -CONH<sub>2</sub>
  - (5) -OR<sup>1t</sup>, and
  - (6) -NHR<sup>1t</sup>.
18. (Original) The compound of claim 1, having the formula VIII:



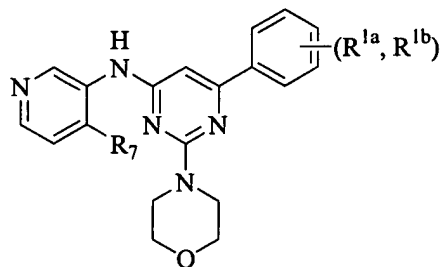
(VIII)

wherein R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub> are selected from the group consisting of

- (1) H,
- (2) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,
- (3) -COOR<sup>1t</sup>,
- (4) -CONH<sub>2</sub>,
- (5) -OR<sup>1t</sup>, and
- (6) -NHR<sup>1t</sup>.



19. (Original) The compound of claim 1, having the formula IX:



(IX)

wherein R<sup>1a</sup> and R<sup>1b</sup> are selected from the group consisting of

- (1) H,
- (2) substituted or unsubstituted alkyl,
- (3) halo,
- (4)  $-(CH_2)_q-N(R^{2c}, R^{2d})$ ,
- (5)  $-(CH_2)_q-N(R^{2c}, R^{2d})COR^{2e}$ ,
- (6)  $-(CH_2)_q-OR^{2e}$ ,
- (7)  $-(CH_2)_q-OCOR^{2e}$ ,
- (8)  $-(CH_2)_q-OCOOR^{2e}$ ,
- (9)  $-(CH_2)_q-COOR^{2e}$ ,
- (10)  $-(CH_2)_q-CONR^{2c}$ ,
- (11) -CN,
- (12) -NO<sub>2</sub>,
- (13) -SO<sub>2</sub>NH<sub>2</sub>,
- (14) -NHSO<sub>2</sub>CH<sub>3</sub>, and
- (15) -SO<sub>2</sub>R<sup>2f</sup>,

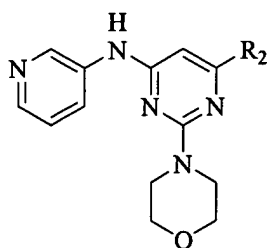
wherein R<sup>2c</sup>, R<sup>2d</sup>, R<sup>2e</sup>, and R<sup>2f</sup> are selected from the group consisting of

- (a) H,
- (b) substituted or unsubstituted alkyl, and
- (c) substituted or unsubstituted phenyl; and

wherein R<sub>7</sub> is selected from the group consisting of

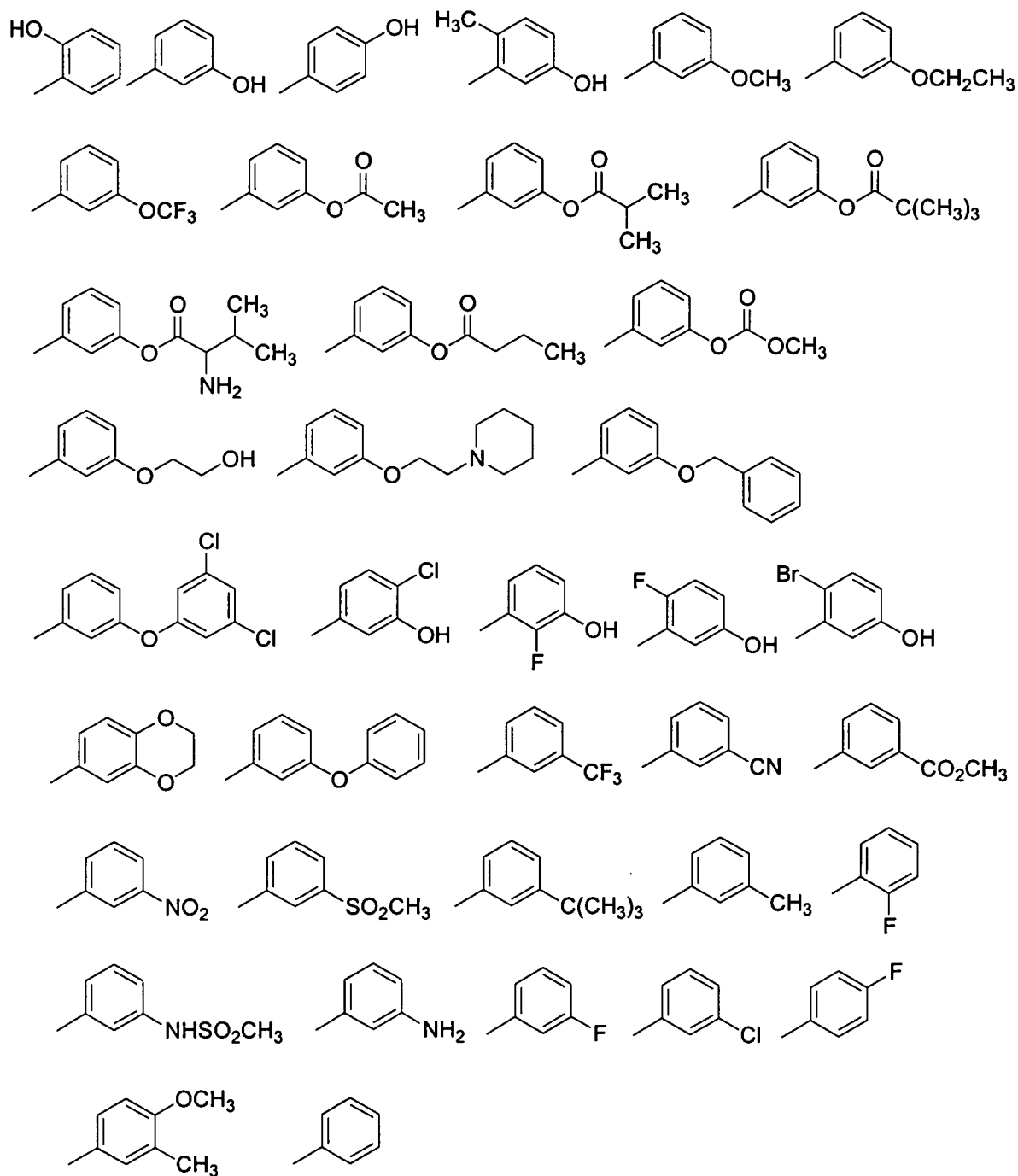
- (1) H,
- (2) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,
- (3) -COOR<sup>1t</sup>,
- (4) -CONH<sub>2</sub>,
- (5) -OR<sup>1t</sup>, and
- (6) -NHR<sup>1t</sup>.

20. (Original) The compound of claim 1, having the formula X:

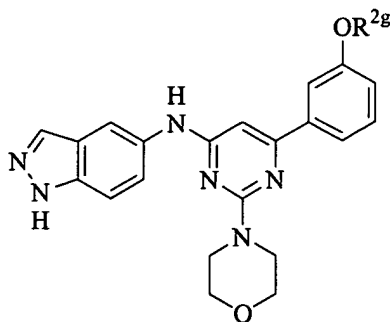


(X)

wherein R<sub>2</sub> is selected from the group consisting of



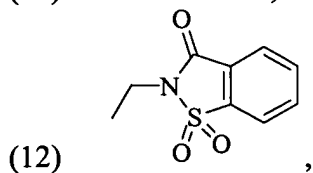
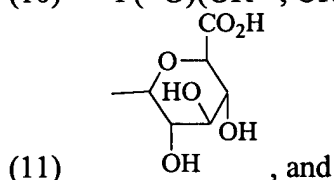
21. (Original) The compound of claim 1, having the formula XI:



(XI)

wherein R<sup>2g</sup> is selected from the group consisting of

- (1) H,
- (2) substituted or unsubstituted alkyl,
- (3) -CONHR<sup>2h</sup>,
- (4) -CON(R<sup>2h</sup>)-(CH<sub>2</sub>)<sub>2-3</sub>-N(R<sup>2h</sup>, R<sup>2i</sup>),
- (5) -COR<sup>2j</sup>,
- (6) -CO<sub>2</sub>R<sup>2j</sup>,
- (7) -COC<sub>1</sub>-C<sub>6</sub>-alkyl-CO<sub>2</sub>H,
- (8) -CH<sub>2</sub>-OC(=O)R<sup>2i</sup>,
- (9) -CH<sub>2</sub>-OC(=O)NHCHR<sup>2i</sup>CO<sub>2</sub>R<sup>2j</sup>,
- (10) -P(=O)(OR<sup>2k</sup>, OR<sup>2p</sup>),

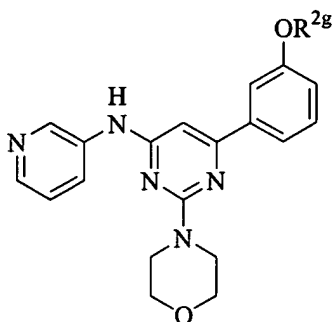


wherein R<sup>2h</sup>, R<sup>2i</sup>, R<sup>2j</sup>, R<sup>2k</sup>, and R<sup>2p</sup> are selected from the group consisting of

- (a) H,

- (b) substituted or unsubstituted alkyl, and
- (c) substituted or unsubstituted aryl.

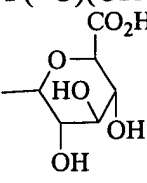
22. (Original) The compound of claim 1, having the formula XII:

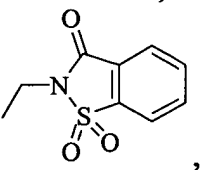


(XII)

wherein R<sup>2g</sup> is selected from the group consisting of

- (1) H,
- (2) substituted or unsubstituted alkyl,
- (3) -CONHR<sup>2h</sup>,
- (4) -CON(R<sup>2h</sup>)-(CH<sub>2</sub>)<sub>2-3</sub>-N(R<sup>2h</sup>, R<sup>2i</sup>),
- (5) -COR<sup>2j</sup>,
- (6) -CO<sub>2</sub>R<sup>2j</sup>,
- (7) -COC<sub>1</sub>-C<sub>6</sub>-alkyl-CO<sub>2</sub>H,
- (8) -CH<sub>2</sub>-OC(=O)R<sup>2i</sup>,
- (9) -CH<sub>2</sub>-OC(=O)NHCHR<sup>2i</sup>CO<sub>2</sub>R<sup>2j</sup>,
- (10) -P(=O)(OR<sup>2k</sup>, OR<sup>2p</sup>),

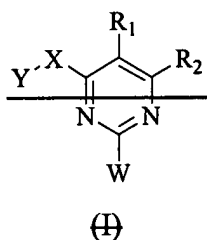
- (11) , and

- (12) ,

wherein R<sup>2h</sup>, R<sup>2i</sup>, R<sup>2j</sup>, R<sup>2k</sup>, and R<sup>2p</sup> are selected from the group consisting of

- (a) H,
- (b) substituted or unsubstituted alkyl, and
- (c) substituted or unsubstituted aryl.

23. (Currently amended) A composition, comprising a pharmaceutically acceptable carrier and an amount of a compound of Claim 1 effective to inhibit phosphatidylinositol (PI) 3-kinase activity in a human or animal subject when administered thereto, ~~wherein the compound has the formula I:~~



~~or a stereoisomer, tautomer, pharmaceutically acceptable salt, ester, or prodrug thereof, wherein~~

~~Y is selected from the group consisting of~~

- ~~(1) — substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~
- ~~(2) — substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkenyl,~~
- ~~(3) — substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkynyl,~~
- ~~(4) — substituted or unsubstituted aryl,~~
- ~~(5) — substituted or unsubstituted heterocyclyl, and~~
- ~~(6) — substituted or unsubstituted heteroaryl;~~

~~X is selected from the group consisting of~~

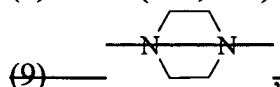
- ~~(1) — a direct link,~~
- ~~(2) — N(R<sup>1\*</sup>),~~
- ~~(3) — (CH<sub>2</sub>)<sub>m</sub>-C(R<sup>2\*</sup>, R<sup>3\*</sup>)-N(R<sup>1\*</sup>),~~
- ~~(4) — O,~~
- ~~(5) — S,~~

LAW OFFICES OF  
CHRISTENSEN O'CONNOR JOHNSON KINDNESS<sup>LLC</sup>  
1420 Fifth Avenue  
Suite 2800  
Seattle, Washington 98101  
206.682.8100

(6) —SO—,

(7) —SO<sub>2</sub>—,

(8) —C(R<sup>2\*</sup>, R<sup>3\*</sup>)—, and



wherein R<sup>1\*</sup>, R<sup>2\*</sup>, and R<sup>3\*</sup> are selected from the group consisting of

(a) —H,

(b) —substituted or unsubstituted C<sub>1</sub>–C<sub>6</sub>–alkyl,

(c) —substituted or unsubstituted C<sub>2</sub>–C<sub>6</sub>–alkenyl,

(d) —substituted or unsubstituted C<sub>2</sub>–C<sub>6</sub>–alkynyl,

(e) —substituted or unsubstituted aryl,

(f) —substituted or unsubstituted heterocyclyl,

(g) —substituted or unsubstituted heteroaryl; and

m is 0, 1, 2, 3, or 4;

R<sub>1</sub> is selected from the group consisting of

(1) —H,

(2) —substituted or unsubstituted C<sub>1</sub>–C<sub>6</sub>–alkyl,

(3) —COOH,

(4) —halo,

(5) —OR<sup>1t</sup>, and

(6) —NHR<sup>1t</sup>,

wherein R<sup>1t</sup> is H or C<sub>1</sub>–C<sub>6</sub>–alkyl;

R<sub>2</sub> is selected from the group consisting of

(1) —substituted or unsubstituted aryl,

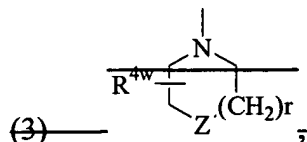
(2) —substituted or unsubstituted heteroaryl, and

(3) —substituted or unsubstituted heterocyclyl; and

W is selected from the group consisting of

(1) —substituted or unsubstituted C<sub>1</sub>–C<sub>6</sub>–alkyl,

(2) —N(R<sup>1w</sup>, R<sup>2w</sup>), and



wherein  $R^{1w}$  and  $R^{2w}$  are selected from the group consisting of

- (a)  $\text{H}$ ,
- (b) substituted or unsubstituted  $\text{C}_1\text{-C}_6$ -alkyl,
- (c) substituted or unsubstituted aryl,
- (d) substituted or unsubstituted heterocyclyl, and
- (e) substituted or unsubstituted heteroaryl, wherein  $R^{1w}$  and  $R^{2w}$  are

not both  $\text{H}$ ;

$Z$  is selected from the group consisting of

- (a)  $\text{O}$ ,
- (b)  $\text{NR}^z$ ,
- (c)  $\text{S}$ ,
- (d)  $\text{SO}$ ,
- (e)  $\text{SO}_2$ , and
- (f)  $\text{CH}_2$ ,

wherein  $R^z$  is  $\text{H}$  or substituted or unsubstituted alkyl group; and

$R^{4w}$  is selected from the group consisting of

- (a)  $\text{H}$ ,
- (b) substituted or unsubstituted  $\text{C}_1\text{-C}_6$ -alkyl,
- (c)  $\text{COOR}^{5w}$ ,
- (d)  $\text{CONH}_2$ ,
- (e)  $\text{OR}^{5w}$ , and
- (f)  $\text{NHR}^{5w}$ ,

wherein  $R^{5w}$  is  $\text{H}$  or  $\text{C}_1\text{-C}_6$ -alkyl; and

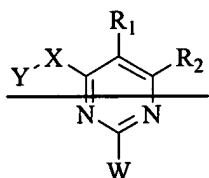
$r$  is 0, 1, or 2.



24. (Original) The composition of Claim 23 further comprising at least one additional agent for the treatment of cancer.

25. (Original) The composition of Claim 24, wherein the at least one additional agent for the treatment of cancer is selected from irinotecan, topotecan, gemcitabine, gleevec, herceptin, 5-fluorouracil, leucovorin, carboplatin, cisplatin, taxanes, tezacitabine, cyclophosphamide, vinca alkaloids, imatinib, anthracyclines, rituximab, tamoxifen, CPT 11, and trastuzumab.

26. (Currently amended) A method for treating a condition by modulation of phosphatidylinositol (PI) 3-kinase activity comprising administering to a human or animal subject in need of such treatment an effective amount of a compound ~~having the formula I: of~~ Claim 1.



(I)

~~or a stereoisomer, tautomer, pharmaceutically acceptable salt, ester, or prodrug thereof,~~  
wherein

~~Y is selected from the group consisting of~~

- ~~(1) — substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~
- ~~(2) — substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkenyl,~~
- ~~(3) — substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkynyl,~~
- ~~(4) — substituted or unsubstituted aryl,~~
- ~~(5) — substituted or unsubstituted heterocyclyl, and~~
- ~~(6) — substituted or unsubstituted heteroaryl;~~

~~X is selected from the group consisting of~~

- ~~(1) — a direct link,~~
- ~~(2) — N(R<sup>1\*</sup>),~~

LAW OFFICES OF  
CHRISTENSEN O'CONNOR JOHNSON KINDNESS<sup>LLC</sup>  
1420 Fifth Avenue  
Suite 2800  
Seattle, Washington 98101  
206.682.8100

(3) —  $(\text{CH}_2)_m \text{C}(\text{R}^{2*}, \text{R}^{3*}) \text{N}(\text{R}^{1*})$ ,

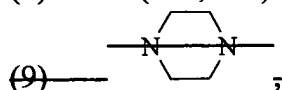
(4) — O,

(5) — S,

(6) — SO,

(7) — SO<sub>2</sub>,

(8) —  $\text{C}(\text{R}^{2*}, \text{R}^{3*})$ , and



wherein  $\text{R}^{1*}$ ,  $\text{R}^{2*}$ , and  $\text{R}^{3*}$  are selected from the group consisting of

(a) — H,

(b) — substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,

(c) — substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkenyl,

(d) — substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkynyl,

(e) — substituted or unsubstituted aryl,

(f) — substituted or unsubstituted heterocyclyl,

(g) — substituted or unsubstituted heteroaryl; and

m is 0, 1, 2, 3, or 4;

$\text{R}_1$  is selected from the group consisting of

(1) — H,

(2) — substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,

(3) — COOH,

(4) — halo,

(5) —  $\text{OR}^{1t}$ , and

(6) —  $\text{NHR}^{1t}$ ,

wherein  $\text{R}^{1t}$  is H or C<sub>1</sub>-C<sub>6</sub>-alkyl;

$\text{R}_2$  is selected from the group consisting of

(1) — substituted or unsubstituted aryl,

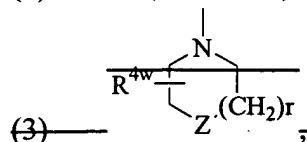
(2) — substituted or unsubstituted heteroaryl, and

(3) — substituted or unsubstituted heterocyclyl; and

~~W is selected from the group consisting of~~

~~(1) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl;~~

~~(2) N(R<sup>1w</sup>, R<sup>2w</sup>), and~~



~~wherein R<sup>1w</sup> and R<sup>2w</sup> are selected from the group consisting of~~

~~(a) H,~~

~~(b) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~

~~(c) substituted or unsubstituted aryl,~~

~~(d) substituted or unsubstituted heterocyclyl, and~~

~~(e) substituted or unsubstituted heteroaryl, wherein R<sup>1w</sup> and R<sup>2w</sup> are~~

~~not both H;~~

~~Z is selected from the group consisting of~~

~~(a) O,~~

~~(b) NR<sup>z</sup>,~~

~~(c) S,~~

~~(d) SO,~~

~~(e) SO<sub>2</sub>, and~~

~~(f) CH<sub>2</sub>,~~

~~wherein R<sup>z</sup> is H or substituted or unsubstituted alkyl group; and~~

~~R<sup>4w</sup> is selected from the group consisting of~~

~~(a) H,~~

~~(b) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~

~~(c) COOR<sup>5w</sup>,~~

~~(d) CONH<sub>2</sub>,~~

~~(e) OR<sup>5w</sup>, and~~

~~(f) NHR<sup>5w</sup>,~~

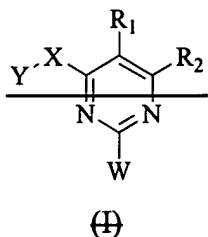
~~wherein R<sup>5w</sup> is H or C<sub>1</sub>-C<sub>6</sub>-alkyl; and~~

~~r is 0, 1, or 2.~~

27. (Original) The method of Claim 26, wherein the compound has an IC<sub>50</sub> value of less than about 20  $\mu$ M in a cell proliferation assay.

28. (Original) The method of Claim 26, wherein the condition is cancer.

29. (Currently amended) A method for inhibiting phosphatidylinositol (PI) 3-kinase activity in a human or animal subject, comprising administering to the human or animal subject a composition comprising an amount of a compound of Claim 1 effective to inhibit phosphatidylinositol (PI) 3-kinase activity in the human or animal subject, ~~wherein the compound has the formula I:~~



~~or a stereoisomer, tautomer, pharmaceutically acceptable salt, ester, or prodrug thereof,~~  
wherein

~~Y is selected from the group consisting of~~

- ~~(1) — substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~
- ~~(2) — substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkenyl,~~
- ~~(3) — substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkynyl,~~
- ~~(4) — substituted or unsubstituted aryl,~~
- ~~(5) — substituted or unsubstituted heterocyclyl, and~~
- ~~(6) — substituted or unsubstituted heteroaryl;~~

~~X is selected from the group consisting of~~

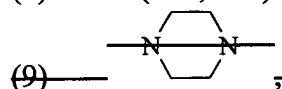
- ~~(1) — a direct link,~~
- ~~(2) — N(R<sup>1\*</sup>),~~
- ~~(3) — (CH<sub>2</sub>)<sub>m</sub>-C(R<sup>2\*</sup>, R<sup>3\*</sup>) N(R<sup>1\*</sup>),~~
- ~~(4) — O,~~

(5) —S—

(6) —SO—

(7) —SO<sub>2</sub>—

(8) —C(R<sup>2\*</sup>, R<sup>3\*</sup>)—, and



wherein R<sup>1\*</sup>, R<sup>2\*</sup>, and R<sup>3\*</sup> are selected from the group consisting of

(a) —H,

(b) —substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,

(c) —substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkenyl,

(d) —substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkynyl,

(e) —substituted or unsubstituted aryl,

(f) —substituted or unsubstituted heterocyclyl,

(g) —substituted or unsubstituted heteroaryl; and

m is 0, 1, 2, 3, or 4;

R<sub>1</sub> is selected from the group consisting of

(1) —H,

(2) —substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,

(3) —COOH,

(4) —halo,

(5) —OR<sup>1t</sup>, and

(6) —NHR<sup>1t</sup>,

wherein R<sup>1t</sup> is H or C<sub>1</sub>-C<sub>6</sub>-alkyl;

R<sub>2</sub> is selected from the group consisting of

(1) —substituted or unsubstituted aryl,

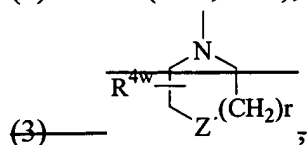
(2) —substituted or unsubstituted heteroaryl, and

(3) —substituted or unsubstituted heterocyclyl; and

W is selected from the group consisting of

(1) —substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,

(2) —N(R<sup>1w</sup>, R<sup>2w</sup>), and



wherein R<sup>1w</sup> and R<sup>2w</sup> are selected from the group consisting of

- (a) —H,
- (b) —substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,
- (c) —substituted or unsubstituted aryl,
- (d) —substituted or unsubstituted heterocyclyl, and
- (e) —substituted or unsubstituted heteroaryl, wherein R<sup>1w</sup> and R<sup>2w</sup> are

not both H;

Z is selected from the group consisting of

- (a) —O,
- (b) —NR<sup>z</sup>,
- (c) —S,
- (d) —SO,
- (e) —SO<sub>2</sub>, and
- (f) —CH<sub>2</sub>,

wherein R<sup>z</sup> is H or substituted or unsubstituted alkyl group; and

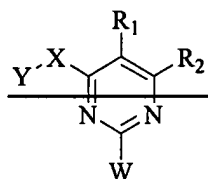
R<sup>4w</sup> is selected from the group consisting of

- (a) —H,
- (b) —substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,
- (c) —COOR<sup>5w</sup>,
- (d) —CONH<sub>2</sub>,
- (e) —OR<sup>5w</sup>, and
- (f) —NHR<sup>5w</sup>,

wherein R<sup>5w</sup> is H or C<sub>1</sub>-C<sub>6</sub>-alkyl; and

r is 0, 1, or 2.

30. (Currently amended) A method for treating a cancer disorder in a human or animal subject, comprising administering to the human or animal subject a composition comprising an amount of a compound of Claim 1 effective to inhibit phosphatidylinositol (PI) 3-kinase activity in the human or animal subject, ~~wherein the compound has the formula I:~~



(I)

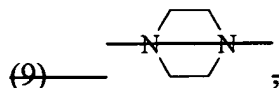
~~or a stereoisomer, tautomer, pharmaceutically acceptable salt, ester, or prodrug thereof, wherein~~

~~Y is selected from the group consisting of~~

- ~~(1) — substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~
- ~~(2) — substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkenyl,~~
- ~~(3) — substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkynyl,~~
- ~~(4) — substituted or unsubstituted aryl,~~
- ~~(5) — substituted or unsubstituted heterocyclyl, and~~
- ~~(6) — substituted or unsubstituted heteroaryl;~~

~~X is selected from the group consisting of~~

- ~~(1) — a direct link,~~
- ~~(2) — N(R<sup>1\*</sup>),~~
- ~~(3) — (CH<sub>2</sub>)<sub>m</sub> C(R<sup>2\*</sup>, R<sup>3\*</sup>) N(R<sup>1\*</sup>),~~
- ~~(4) — O,~~
- ~~(5) — S,~~
- ~~(6) — SO,~~
- ~~(7) — SO<sub>2</sub>,~~
- ~~(8) — C(R<sup>2\*</sup>, R<sup>3\*</sup>), and~~



wherein  $R^{1*}$ ,  $R^{2*}$ , and  $R^{3*}$  are selected from the group consisting of

- (a) — H;
- (b) — substituted or unsubstituted  $C_1-C_6$ -alkyl;
- (c) — substituted or unsubstituted  $C_2-C_6$ -alkenyl;
- (d) — substituted or unsubstituted  $C_2-C_6$ -alkynyl;
- (e) — substituted or unsubstituted aryl;
- (f) — substituted or unsubstituted heterocyclyl;
- (g) — substituted or unsubstituted heteroaryl; and

m is 0, 1, 2, 3, or 4;

$R_1$  is selected from the group consisting of

- (1) — H;
- (2) — substituted or unsubstituted  $C_1-C_6$ -alkyl;
- (3) —  $COOH$ ;
- (4) — halo;
- (5) —  $OR^{1t}$ ; and
- (6) —  $NHR^{1t}$ ;

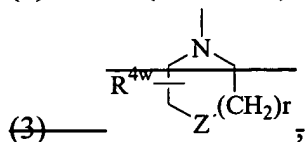
wherein  $R^{1t}$  is H or  $C_1-C_6$ -alkyl;

$R_2$  is selected from the group consisting of

- (1) — substituted or unsubstituted aryl;
- (2) — substituted or unsubstituted heteroaryl; and
- (3) — substituted or unsubstituted heterocyclyl; and

W is selected from the group consisting of

- (1) — substituted or unsubstituted  $C_1-C_6$ -alkyl;
- (2) —  $N(R^{1w}, R^{2w})$ ; and





~~wherein  $R^{1w}$  and  $R^{2w}$  are selected from the group consisting of~~

- ~~(a) — H,~~
- ~~(b) — substituted or unsubstituted  $C_1-C_6$ -alkyl,~~
- ~~(c) — substituted or unsubstituted aryl,~~
- ~~(d) — substituted or unsubstituted heterocyclyl, and~~
- ~~(e) — substituted or unsubstituted heteroaryl, wherein  $R^{1w}$  and  $R^{2w}$  are~~

~~not both H;~~

~~Z is selected from the group consisting of~~

- ~~(a) — O,~~
- ~~(b) —  $NR^z$ ,~~
- ~~(c) — S,~~
- ~~(d) — SO,~~
- ~~(e) —  $SO_2$ , and~~
- ~~(f) —  $CH_2$ ,~~

~~wherein  $R^z$  is H or substituted or unsubstituted alkyl group; and~~

~~$R^{4w}$  is selected from the group consisting of~~

- ~~(a) — H,~~
- ~~(b) — substituted or unsubstituted  $C_1-C_6$ -alkyl,~~
- ~~(c) —  $COOR^{5w}$ ,~~
- ~~(d) —  $CONH_2$ ,~~
- ~~(e) —  $OR^{5w}$ , and~~
- ~~(f) —  $NHR^{5w}$ ,~~

~~wherein  $R^{5w}$  is H or  $C_1-C_6$ -alkyl; and~~

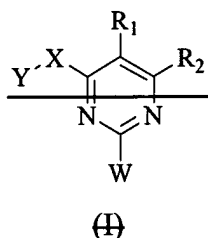
~~r is 0, 1, or 2.~~

31. (Original) The method of Claim 30 further comprising administering to the human or animal subject at least one additional agent for the treatment of cancer.

32. (Original) The method of Claim 31, wherein the at least one additional agent for the treatment of cancer is selected from irinotecan, topotecan, gemcitabine, gleevec, herceptin,

5-fluorouracil, leucovorin, carboplatin, cisplatin, taxanes, tezacitabine, cyclophosphamide, vinca alkaloids, imatinib, anthracyclines, rituximab, tamoxifen, CPT 11, and trastuzumab.

33. (Currently amended) A method for inhibiting tumor growth in a human or animal subject, comprising administering to the human or animal subject in need thereof an effective amount of a compound ~~having the formula I:~~ of Claim 1.



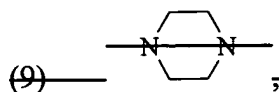
~~or a stereoisomer, tautomer, pharmaceutically acceptable salt, ester, or prodrug thereof,~~  
wherein

~~Y is selected from the group consisting of~~

- ~~(1) — substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~
- ~~(2) — substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkenyl,~~
- ~~(3) — substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkynyl,~~
- ~~(4) — substituted or unsubstituted aryl,~~
- ~~(5) — substituted or unsubstituted heterocyclyl, and~~
- ~~(6) — substituted or unsubstituted heteroaryl;~~

~~X is selected from the group consisting of~~

- ~~(1) — a direct link,~~
- ~~(2) — N(R<sup>1\*</sup>),~~
- ~~(3) — (CH<sub>2</sub>)<sub>m</sub>-C(R<sup>2\*</sup>, R<sup>3\*</sup>)-N(R<sup>1\*</sup>),~~
- ~~(4) — O,~~
- ~~(5) — S,~~
- ~~(6) — SO,~~
- ~~(7) — SO<sub>2</sub>,~~
- ~~(8) — C(R<sup>2\*</sup>, R<sup>3\*</sup>), and~~



wherein  $R^{1*}$ ,  $R^{2*}$ , and  $R^{3*}$  are selected from the group consisting of

- (a) — H;
- (b) — substituted or unsubstituted  $C_1$ - $C_6$ -alkyl;
- (c) — substituted or unsubstituted  $C_2$ - $C_6$ -alkenyl;
- (d) — substituted or unsubstituted  $C_2$ - $C_6$ -alkynyl;
- (e) — substituted or unsubstituted aryl;
- (f) — substituted or unsubstituted heterocyclyl;
- (g) — substituted or unsubstituted heteroaryl; and

m is 0, 1, 2, 3, or 4;

$R_1$  is selected from the group consisting of

- (1) — H;
- (2) — substituted or unsubstituted  $C_1$ - $C_6$ -alkyl;
- (3) —  $COOH$ ;
- (4) — halo;
- (5) —  $OR^{1t}$ ; and
- (6) —  $NHR^{1t}$ ;

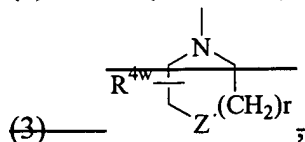
wherein  $R^{1t}$  is H or  $C_1$ - $C_6$ -alkyl;

$R_2$  is selected from the group consisting of

- (1) — substituted or unsubstituted aryl;
- (2) — substituted or unsubstituted heteroaryl; and
- (3) — substituted or unsubstituted heterocyclyl; and

W is selected from the group consisting of

- (1) — substituted or unsubstituted  $C_1$ - $C_6$ -alkyl;
- (2) —  $N(R^{1w}, R^{2w})$ ; and



~~wherein  $R^{1w}$  and  $R^{2w}$  are selected from the group consisting of~~

- ~~(a) — H,~~
- ~~(b) — substituted or unsubstituted  $C_1-C_6$ -alkyl,~~
- ~~(c) — substituted or unsubstituted aryl,~~
- ~~(d) — substituted or unsubstituted heterocyclyl, and~~
- ~~(e) — substituted or unsubstituted heteroaryl, wherein  $R^{1w}$  and  $R^{2w}$  are~~

~~not both H;~~

~~Z is selected from the group consisting of~~

- ~~(a) — O,~~
- ~~(b) —  $NR^z$ ,~~
- ~~(c) — S,~~
- ~~(d) — SO,~~
- ~~(e) —  $SO_2$ , and~~
- ~~(f) —  $CH_2$ ,~~

~~wherein  $R^z$  is H or substituted or unsubstituted alkyl group; and~~

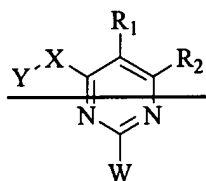
~~$R^{4w}$  is selected from the group consisting of~~

- ~~(a) — H,~~
- ~~(b) — substituted or unsubstituted  $C_1-C_6$ -alkyl,~~
- ~~(c) —  $COOR^{5w}$ ,~~
- ~~(d) —  $CONH_2$ ,~~
- ~~(e) —  $OR^{5w}$ , and~~
- ~~(f) —  $NHR^{5w}$ ,~~

~~wherein  $R^{5w}$  is H or  $C_1-C_6$ -alkyl; and~~

~~r is 0, 1, or 2.~~

34. (Currently amended) A method for inhibiting the proliferation of capillaries in a human or animal subject, comprising administering to the human or animal subject in need thereof an effective amount of a compound ~~having the formula I: of Claim 1.~~



(I)

or a stereoisomer, tautomer, pharmaceutically acceptable salt, ester, or prodrug thereof,

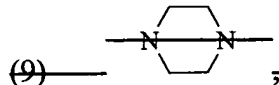
wherein

Y is selected from the group consisting of

- (1) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl;
- (2) substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkenyl;
- (3) substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkynyl;
- (4) substituted or unsubstituted aryl;
- (5) substituted or unsubstituted heterocyclyl; and
- (6) substituted or unsubstituted heteroaryl;

X is selected from the group consisting of

- (1) a direct link;
- (2) N(R<sup>1\*</sup>);
- (3) (CH<sub>2</sub>)<sub>m</sub>-C(R<sup>2\*</sup>, R<sup>3\*</sup>)-N(R<sup>1\*</sup>);
- (4) O;
- (5) S;
- (6) SO;
- (7) SO<sub>2</sub>;
- (8) C(R<sup>2\*</sup>, R<sup>3\*</sup>); and



wherein R<sup>1\*</sup>, R<sup>2\*</sup>, and R<sup>3\*</sup> are selected from the group consisting of

- (a) H;
- (b) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl;
- (c) substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkenyl;

- (d) ~~substituted or unsubstituted C<sub>2</sub>-C<sub>6</sub>-alkynyl,~~
- (e) ~~substituted or unsubstituted aryl,~~
- (f) ~~substituted or unsubstituted heterocyclyl,~~
- (g) ~~substituted or unsubstituted heteroaryl; and~~

~~m is 0, 1, 2, 3, or 4;~~

~~R<sub>1</sub> is selected from the group consisting of~~

- (1) ~~H,~~
- (2) ~~substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~
- (3) ~~COOH,~~
- (4) ~~halo,~~
- (5) ~~OR<sup>1t</sup>, and~~
- (6) ~~NHR<sup>1t</sup>,~~

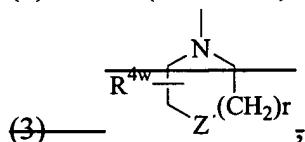
~~wherein R<sup>1t</sup> is H or C<sub>1</sub>-C<sub>6</sub>-alkyl;~~

~~R<sub>2</sub> is selected from the group consisting of~~

- (1) ~~substituted or unsubstituted aryl,~~
- (2) ~~substituted or unsubstituted heteroaryl, and~~
- (3) ~~substituted or unsubstituted heterocyclyl; and~~

~~W is selected from the group consisting of~~

- (1) ~~substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~
- (2) ~~N(R<sup>1w</sup>, R<sup>2w</sup>), and~~



~~wherein R<sup>1w</sup> and R<sup>2w</sup> are selected from the group consisting of~~

- (a) ~~H,~~
- (b) ~~substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~
- (c) ~~substituted or unsubstituted aryl,~~
- (d) ~~substituted or unsubstituted heterocyclyl, and~~

~~(e) substituted or unsubstituted heteroaryl, wherein R<sup>1w</sup> and R<sup>2w</sup> are not both H;~~

~~Z is selected from the group consisting of~~

- ~~(a) O,~~
- ~~(b) NR<sup>z</sup>,~~
- ~~(c) S,~~
- ~~(d) SO,~~
- ~~(e) SO<sub>2</sub>, and~~
- ~~(f) CH<sub>2</sub>,~~

~~wherein R<sup>z</sup> is H or substituted or unsubstituted alkyl group; and~~

~~R<sup>4w</sup> is selected from the group consisting of~~

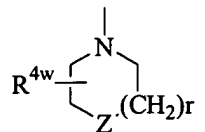
- ~~(a) H,~~
- ~~(b) substituted or unsubstituted C<sub>1</sub>-C<sub>6</sub>-alkyl,~~
- ~~(c) COOR<sup>5w</sup>,~~
- ~~(d) CONH<sub>2</sub>,~~
- ~~(e) OR<sup>5w</sup>, and~~
- ~~(f) NHR<sup>5w</sup>,~~

~~wherein R<sup>5w</sup> is H or C<sub>1</sub>-C<sub>6</sub>-alkyl; and~~

~~r is 0, 1, or 2.~~

- 35. (Canceled)
- 34. (Canceled) Redundant Claim. Same as Claim 34.
- 36. (Canceled)
- 37. (New) A compound of Claim 1, wherein R<sub>2</sub> is hydroxy-substituted phenyl.
- 38. (New) A compound of Claim 1, wherein R<sub>2</sub> is substituted or unsubstituted pyridinyl.
- 39. (New) A compound of Claim 1, wherein R<sub>2</sub> is substituted or unsubstituted pyrimidinyl.

40. (New) A compound of Claim 1, wherein W is



41. (New) A compound of Claim 40, wherein  $R^{4w}$  is H,  $r$  is 1, and  $Z$  is O.

42. (New) A compound of Claim 1, wherein Y is substituted or unsubstituted heterocyclyl.

43. (New) A compound of Claim 1, wherein X is a O and Y is substituted or unsubstituted heterocyclyl.

44. (New) A compound of Claim 1, wherein X is a direct link and Y is substituted or unsubstituted heterocyclyl.

45. (New) A compound of Claim 40, wherein  $R^{4w}$  is H,  $r$  is 1,  $Z$  is O, Y is substituted or unsubstituted heterocyclyl,  $R_1$  is H, and  $R_2$  is substituted or unsubstituted heteroaryl.

46. (New) A compound of Claim 40, wherein  $R^{4w}$  is H,  $r$  is 1,  $Z$  is O, X is O or a direct link, Y is substituted or unsubstituted heterocyclyl,  $R_1$  is H, and  $R_2$  is substituted or unsubstituted heteroaryl.